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TECHNOLOGY CENTER 1700

APPENDIX

Amended Version of Claims Showing Changes

1. (TWICE AMENDED) A nozzle for the injection of fluid into a molding chamber comprising:

a hollow passage having a distal end for connecting a pressurized fluid supply to the interior of said chamber; and

a pin extending through said passage and reciprocal between an extended position and a retracted position, said pin having an enlarged distal portion extending beyond the distal end of said passage, said enlarged distal portion being at least partially within and substantially blocking said passage when said pin is in its retracted position, and having a pressure surface exposed to pressurized fluid supplied via said passage; and

an actuator operably coupled to said pin, and reciprocating said pin in cooperation with said pressurized fluid.

2. (CANCELLED)

3. (AMENDED) The nozzle of claim 1 wherein [said pin is hydraulically reciprocated] said actuator is a hydraulic actuator.

6. (AMENDED) The nozzle of claim 1 [further comprising] wherein said actuator is a ball screw drive for reciprocating the pin.

7. (TWICE AMENDED) A gas assisted injection molding apparatus comprising:

a molding chamber;

a supply of pressurized gas;

a hollow conduit communicating with said gas supply and extending into said chamber;

a pin extending through said conduit and reciprocal between an extended position and a retracted position, said pin having an enlarged distal portion exposed to fluid pressure from said hollow conduit which is positioned at least partially within and which substantially closes said conduit when said pin is in said retracted position; and

an electronic actuator reciprocating said pin in cooperation with said fluid supply pressure.

11. (NEW) A nozzle for the injection of fluid into a molding chamber comprising:

a hollow passage having a tapered first end for connecting a pressurized fluid supply to the interior of said chamber; and

a pin extending through said passage and reciprocal between an extended position and a retracted position, a first end of said pin having an enlarged distal portion with a first pressure surface exposed to fluid pressure from said passage, said enlarged distal portion being substantially complementary to said tapered first end of said passage, and substantially blocking said passage when said pin is in its retracted position; wherein a second end of said pin has a second pressure surface exposed to hydraulic pressure in a variable pressure fluid reservoir, variation of hydraulic pressure in said reservoir assisting in reciprocating said pin, in cooperation with fluid pressure acting on said enlarged distal portion.



ABSTRACT OF THE DISCLOSURE

A nozzle for the injection of fluid into a molding chamber is provided. The nozzle includes a hollow passage having a distal end for connecting a pressurized fluid supply to the interior of the chamber and a pin extending through the passage, the pin being reciprocal between an extended position and a retracted position. The pin has an enlarged distal portion extending beyond the distal end of the passage that is positioned at least partially within and substantially blocks the passage when the pin is retracted. The pin has a pressure surface exposed to pressurized fluid from the hollow passage and an actuator operably coupled to the pin. Fluid pressure on the pressure surface and the action of the actuator reciprocates the pin.